

What is Claimed Is:

1. A post-deployment stent structure for maintaining patency of a vessel of a human body comprising:

5 a multiplicity of closed, generally circular rings, the plane of each ring being generally parallel to the plane of each adjacent ring, the rings having a common longitudinal axis which is perpendicular to the plane of each ring and which longitudinal axis passes through the geometric center of each ring; and

10 a multiplicity of elongated wire structures forming longitudinals which longitudinals are fixedly attached to the rings so as to be generally parallel to the longitudinal axis of the rings.

2. The stent of claim 2 wherein the rings have a multiplicity of cutouts for the placement therethrough of the longitudinals.

15 3. The stent of claim 2 wherein the cutouts on the rings are notches.

4. The stent of claim 3 wherein the notches on the rings are located at the outside perimeter of each ring.

5. The stent of claim 3 wherein the notches are located at the inside perimeter of each ring.

20 6. The stent of claim 2 wherein the cutouts are holes drilled through the rings.

7. The stent of claim 1 wherein the longitudinals are essentially straight wires.

25 8. The stent of claim 1 wherein at least two of the longitudinals are of an undulating shape.

9. The stent of claim 1 wherein the longitudinals are welded to the rings.

10. The stent of claim 1 wherein the rings and longitudinals are made from or coated titanium.

30 11. The stent of claim 1 wherein the end rings are more radiopaque as compared to any other ring.

12. The stent of claim 1 wherein the stent is formed from a metal having a shape memory characteristic.

35 13. An initial structure that is capable of being formed into a pre-deployment stent structure which in turn is capable of being deployed into a

post-deployment stent structure for placement within a vessel of the human body, the initial structure comprising:

a multiplicity of flat ovals, the plane of each oval being generally parallel to the plane of all other ovals, the ovals having a common longitudinal axis which is perpendicular to the plane of each oval and which longitudinal axis passes through the geometric center of the ovals; and

a multiplicity of longitudinals which are fixedly attached to the ovals, the longitudinals being positioned onto the ovals so as to be generally parallel to the longitudinal axis of the ovals.

10 14. The initial structure of claim 12 wherein the ovals and the longitudinals are formed from a single piece of metal.

15 15. A generally cylindrical pre-deployment stent structure which is capable of being deployed into a post-deployment stent structure for placement within a vessel of the human body, the pre-deployment structure being formed from an initial structure which consists of a multiplicity of flat ovals, the plane of each oval being generally parallel to the plane of all other ovals, the ovals also having a minor axis and a major axis and a minor axis dimension and a major axis dimension; the ovals having a common longitudinal axis which is perpendicular to the plane of each oval and which
20 longitudinal axis passes through the geometric center of the ovals; and a multiplicity of longitudinals which are fixedly attached to the ovals, the longitudinals being positioned onto the ovals so as to be generally parallel to the longitudinal axis of the ovals;

25 the pre-deployment stent structure being formed by folding the ovals around a distal portion of a stent delivery catheter, the pre-deployment stent structure being adapted to form a post-deployment stent structure having a multiplicity of generally circular rings that are formed from the ovals, the circular rings being joined together by the longitudinals.

30 16. The pre-deployment stent structure of claim 15 wherein the ovals are folded around an expandable balloon located near the distal end of the stent delivery catheter.

17. The pre-deployment stent structure of claim 15 wherein the ovals are folded around the oval's minor axis to form a generally cylindrical shape that can be mounted onto a stent delivery catheter.

18. The pre-deployment stent structure of claim 15 wherein one side of the ovals is folded in one direction and the opposite side of the ovals is folded in the opposite direction to form a pre-deployment structure of a generally cylindrical shape.

5 19. The pre-deployment stent structure of claim 15 wherein the outer diameter of the generally cylindrical pre-deployment stent structure is approximately the same as the minor axis dimension of the oval.

10 20. The pre-deployment stent structure of claim 15 wherein the stent structure is a cylinder formed from a single piece of metal, the cylinder being slightly smaller in its inside diameter as compared to the outside diameter of an expandable balloon located at a distal portion of a stent delivery catheter onto which the stent structure is mounted.